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## TU-K receives High-Tech CF6 80A2 Aircraft Engine

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**TVET 'CHAMPION' HONOURED** 



ST. JOHN AMBULANCE TRAINS STAFF ON LIFE-SAVING SKILLS

## **MESSAGE FROM THE VICE-CHANCELLOR**

e ended the first quarter of 2017 on a high. The University received a generous gift in the form of CF6-80A2 aircraft engine worth Sh200 million and an assortment of used aircraft parts, aircraft manuals and reference books. We are grateful to GE, Kenya Airways (KQ) and Boeing for the generous donations.

The donations will greatly enhance the training and learning for Aerospace and Aviation Engineering students. I am proud to learn that many of our graduates have continued to secure jobs in aviation organisations that include airlines, Maintenance and Repair Organisations (MROs) and even the Kenya Defence Force (KDF). The industry readily accepts our graduates because of the hands-on training and quality learning they receive while here.

During this first quarter of 2017, the Government reconstituted the University Council. As the oversight authority in the management of the university affairs, the Council is a critical organ in ensuring TU-K attains it Vision and Mission.

During the  $15^{\rm th}$  Universities Exhibition held at the Catholic University of Eastern Africa, once again TU-K confirmed its dominance in innovations and



Prof Dr-Ing. Francis W.O. Aduol Vice-Chancellor

technology. The quality of the students exhibits was incredible. The University left no doubt in the minds of the public that we mean business. The industry needs to closely work with our students to commercialise the innovations for the benefit of this country and humanity in general.

Recently, a group of three former students who graduated in December 2016 won an international award for their innovation of a drone. What may not have been reported is that the project began right here at TU-K before they were employed by a private firm. The award all but confirmed that, at TU-K, we indeed train for the real world!

As a growing University, we have continued to attract qualified and experienced faculty and the Council has been very supportive. Recently, the Council either promoted or appointed a number of academic staff to become Associate Professors, Senior Lecturers and Lecturers. Several administrative staff were also appointed.

We are grateful to the Ministry of Education for making it possible for teachers in TVET institutions to join TU-K to advance their qualifications. The Ministry is closely working with the African Development Bank that has extended a grant mean to improve skills of TVET teachers. By deciding to study at TU-K, the teachers have expressed their vote of confidence in this premier institution.

The members of staff have continued to participate in CSR activities, the most recent one being when they organised a career talk and donated foodstuff in Special Schools in Mombasa. CSR is part of the University's outreach activities meant to increase community engagement.

We are grateful to St John Ambulance for training some of the TU-K members of staff in life-saving skills. The training has increased the pool of skilled staff that may be called upon to save lives and property during emergencies.

I wish all members of staff and our development partners a Happy New Year 2017 and look forward to achieving more!

**Editorial Team:** Dr. Ken Ramani, Cosmas Kanyadudi, Daniel Macharia, Billy Mutai, Lucy Anaya, Bernard Awino, David Mwangi, Elizabeth Kariuki.



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The Government has reconstituted the Council of the Technical University of Kenya. Below are the profiles of the new appointees.

**DR. HALIMA SAADO** has been appointed the Chairperson of the Technical University of Kenya Council.

Dr. Saado's professional interest is in research and natural resource management focusing on the areas of biodiversity conservation, climate change, ethnobotany, indigenous knowledge, natural products bioprospecting, food security, teaching capacity building.

She is keen in empowerment of local communities in resource management and alleviation of human suffering through strengthening resilience of vulnerable people.

Dr. Saado holds a PhD in Ethnobotany from University of KwaZulu-Natal, South Africa (2011), Master of Science in Ethnobotany from University of KwaZulu-Natal, South Africa (2008) and a Bachelor of Science in Botany from Moi University (2004).

She is currently Head of Research at International Center for Humanitarian Affairs, Kenya Red Cross Society where she supports research in humanitarian issues, actions, disaster relief and improving community resilience. She has also served at the Society as Programme Manager, Environment and Climate Change Adaptation.

Between the year 2011 and 2015, she was a Senior Research Scientist and Head of Economic Botany Section, National Museums of Kenya. Between 2013 and 2015, she worked as a Lecturer in the areas of Conservation and Sustainable Development at the University of Eldoret.

Dr. Saado has earned several awards including the 2012 top reviewer in the Pharmacology, best presentation at the 12<sup>th</sup> Annual Seminar, Research Centre for Plant Growth and Development, School of Biological and Conservation Science, University of KwaZulu-Natal (2010).

She has offered consultancy

## DR. HALIMA SAADO TO HEAD TU-K COUNCIL



Dr. Halima Saado

services to various local and international institutions including Baseline study of economic and shared resource conflict in Mandera funded by ICPALD-IGAD (2015) and capacity building and empowerment of relevant stakeholders in Marsabit

Dr Saado holds a keen interest in empowerment of local communities in resource management and alleviation of human suffering through strengthening resilience of vulnerable people. Forest Ecosystem funded by French Development Agency and the French Global Environment Facility through Kenya Wildlife Services (2014/15).

Dr. Saado has published eight articles in the refereed journals and has attended five conferences and workshops. She is a referee for two international journals: Journal of Ethnopharmacology and South Africa Journal of Botany.

She is a member of various professional associations including Society of Economic Botany (Kenya Chapter), South Africa Association of Botanists (SAAB), Tropical Biology Association, Nature Kenya among others.



**MR. ALEXANDER MWANTHI NGUI** has been appointed as member of the Technical University of Kenya Council.

Mr. Ngui is a finance and accounting professional with indepth knowledge in all areas of business development, relationship management and experience in appraising organisation's financial position. He has a bias in cooperative movement and SME banking.

Equally he is a master in handling complex financial analysis, reports, and models extending to all areas in internal audit including; internal control, risk-based auditing and report-writing, credit analysis, assessment and debt recovery.

Mr. Ngui holds a Master of Business Administration - Finance (2010) and a Bachelor of Arts in Economics (2002) both from the University of Nairobi.

He is currently pursuing a PhD in Business Administration at Kenyatta University.

He is the Co-operative Bank of Kenya Country Segment Head-Transport (PSV) SACCOs, a position he assumed in 2015 where he provides leadership to SACCOs in the Public Service Vehicles (PSV) subsector with over 600 institutions. He also leads in Data Governance for the Co-operatives Division taking care of data quality cleansing for over 7,000 banking Co-operative societies.

Between the years 2013 and 2014, Mr. Ngui was the Co-operative Bank's Sacco Relationship Manager-Nairobi Region. He was also an Assistant Co-operative Relations Officer at the bank's Sacco Banking Department. From October 2007 to 2013, Mr. Ngui served as a Business Enterprise Banker at Barclays Bank of Kenya.

He is the Vice-Chairman, Kalama Investment Group, Board of Management Chairman at Kalama Secondary School and Treasurer at Co-operative Bank's Department Staff Welfare Association.

Mr. Ngui has attended several local and international conferences and workshops.

**MS. ISABELLA OCHOLA-WILSON** has been re-appointed as member of the Technical University of Kenya Council.

Ochola-Wilson Ms. has а solid background in business and organisational management having offered services in various senior positions and capacities for privates companies, development organisations and government agencies.

She is now an independent consultant and business personality.

She holds an MBA in Marketing from British Columbia University, Vancouver, Canada (1976) and a Bachelor of Arts in Business Administration from the University of Dar-es-Salaam, Tanzania (1973).

Ms. Ochola-Wilson has in the past served as the General Manager, Johnsons and Johnsons and as Deputy Director at Kenya Wildlife, Commercial and Tourism Department.

Ms. Ochola-Wilson is currently Chairman, Unga Group Limited Board and Board member of NIC Bank, Basecamp Explorer and Unga Millers (Uganda) Limited. She has in the past served as Director, African Medical Research Foundation (AMREF), Director, Kenya Rural Roads Authority Board and board member of the Council of University of Nairobi and Institute for International Rural Reconstruction (IIRR).

She has offered consultancy services in her area of specialisation to several local and international institutions among them United Nations Development Programme (UNDP) where she was responsible for development of the Youth Empowerment Scheme – Micro and Small Enterprises.

She has also consulted for Britain's Department for International



Development (DfID) in areas of corporate social responsibility and partnership project with private sector and has also been a Manager for DfID's Business Partnership Programme – Nairobi.



**DR. NORAH CHEBET TALAM LANGAT** has been appointed as a member of the TU-K Council.

Dr. Langat has over ten years broad range public health experience and specialisation in managing large public health programmes at partner and donor level Institutions, nine years experience in HIV prevention programme management and 15 years experience in research.

Dr. Langat holds a PhD in Public Health- Epidemiology &Disease from Maseno University (2013), Master of Public Health- Epidemiology and Disease control and Bachelor of Education Science – Zoology (2003) from Moi University and a Diploma in Agricultural Education and Extension (AGED) from Egerton University (1996).

She is currently the HIV Prevention Programme Manager at KEMRI/Walter Reed Project, PEPFAR HIV Programme, South Rift Valley, Kericho charged with responsibilities among them; provision of technical assistance and program management to USDOD implementing partners in South Rift Valley, technical planning, monitoring and evaluation, capacity building, technical assistance to national committees research activities.

She is a leader in offering technical support in HIV prevention programming and integration including key and priority population, school and youth programmes, voluntary medical male circumcision, orphaned and vulnerable children program and DREAMS Initiative.

Dr. Langat served as a Member of the Board of Directors in Moi Teaching and Referral Hospital, Eldoret (MTRH) (2010 to 2015), represented MTRH Board in AMPATH Board, in Eldoret supported by USAID PEPFAR HIV Programme (2013-2015)

She is a member of Technical Working Group for Mostat Risk Populations (MARPs) including sex workers, men having Sex with men (MSMs),Truckers and Fisher folks.

Dr. Langat is also a member of National Task force for Voluntary Medical Male Circumcision among other five leadership and membership roles in working groups, Research project, agencies and foundations.

She has in many occasions offered technical assistance to the Ministry of Health in development of various Guidelines and Strategic plans

In 2008, Dr. Langat was a part time lecturer at Egerton University's Faculty of Science and between 2003 and 2008 she lectured at Eldoret Polytechnic's department of applied science.

She has published seven peerreviewed papers and also presented eight conference papers.

She has supervised two Master of Public Health students and examined nine theses as an external examiner.

**ENGINEER JOSEPH N. NKADAYO** has been appointed as member of the Technical University of Kenya Council.

Eng. Nkadayo holds a Msc Degree in Highway Engineering from the University of Birmingham in United Kingdom (1989) and BSc in Civil Engineering from the University of Nairobi (1983).

Between 1994-2001, Eng. Nkadayo was appointed Registrar at the Engineers Registration Board of Kenya. He also worked as a consulting engineer with the Engineers Registration Board of Kenya.

In 2003, Eng. Nkadayo was in charge of the Roads Department as the Principal Superintending Engineer (Technical Administration). He represented the Kenyan Government from 2004 to 2006 in Regional bodies which included East African Community, New Partnership for Africa Development (NEPAD) and Common Market for Eastern and Southern Africa (COMESA).

He was appointed the Managing Director and Senior Partner in Sungate Limited, a consulting engineering firm from 2007 to 2008.

Between the year 2008 and 2014, he worked as Director General and Chief Executive Officer (CEO) of Kenyan Urban Roads Authority (KURA).

He is currently the Managing Director, Sunton Limited where he's involved in recruiting, training and management of human resources. He is responsible for technical, financial and management.



### ASSOCIATE PROFESSORS APPOINTED

**DR. ERIC OGUR** has been promoted to the position of Associate Professor in the Department of Mechanical Engineering. He is currently the Director. Centre for Engineering Innovation and Production (CEIP). He holds a PhD in Engineering from University of Warwick (2007), Master of Science in Manufacturing System Engineering from University of Warwick (2002) and a Higher Diploma in Mechanical Engineering from Kenya Polytechnic (1996). Prior to joining the Technical University of Kenya in 2011, he worked as a Research Fellow at the Warwick Manufacturing Group in the University of Warwick and as an Engineer with Proctor and Gamble, GmbH in

DR. TOM KWANYA has been promoted to the position of as Associate Professor in the Department of Information and Knowledge Management, School of Information and Communication Studies. Dr. Kwanya was appointed a Senior Lecturer at the Department of Library and Information Studies in July 2013. In April 2014, he was appointed Chairman of the Department of Information and Knowledge Management. Dr. Kwanya holds a PhD in Information Studies from University of KwaZulu-Natal, South Africa (2010), Master of Arts Communication Studies from University of Nairobi (2005) and a Bachelor of Science in Information Science from Moi University (1996). In 2012, he was appointed Lecturer in Information Studies Programme at the School of Sociology and Social Studies at the University of

Frankfurt, Germany. Dr. Ogur has received several research awards from the National Commission for Science Technology and Innovation (NACOSTI): his research areas include Biofuels. Solid Waste Management. Renewable Energy and Recycling of materials. He teaches Mechanical Engineering, Principles of Engineering, Thermodynamics, Fluid Mechanics, Strength of Materials, Mechanics of Machines and Computer Aided Design and Manufacture to undergraduates and Advanced Computer Aided Design and Computer Aided Manufacturing to postgraduate students. He has over 20 publications in refereed journals, a book on Polymer Processing with



KwaZulu-Natal. In 2006, he was appointed sessional Lecturer at University of Nairobi, USIU and Moi University. He has published two books and eight selected journal articles in refereed journals. He has also



Supercritical Fluids and a patent on A Tank for Pre-treatment of Waste Oil/Fat in Biodiesel Production.

made presentations in more than ten local and international conferences including the International Conference on ICT Management for Global Competitiveness and Economy Growth in Emerging Economies held in Poland. Dr. Kwanya has in the past offered consultancy services and held several positions in private and public sectors including USAID Kenya, South Sudan Ministry of Information and Broadcast, (a project sponsored by the World Bank) AMREF, African Population and Health Research Centre, Gambia's Telecommunication and Multimedia Institute, among others. He has supervised one (1) PhD and fifteen (15) Masters students to completion. He is a member of Kenya Library Association (KLA), Public Relations Society of Kenya (PRSK) and Computer Society of Kenya (CSK).

#### DR. FLORENCE OLOO

has been promoted to the position of Associate Professor in the Department of Chemistry, School of Physical Sciences and Technology. Prior to her promotion, Dr. Oloo served as a Senior Lecturer and Director, Global and Community Engagement. She holds a PhD in Chemistry from JKUAT (2003), MSc in



Chemistry from the University of Ibadan (1995), BA in Philosophy & Science of Education, Rome (1989) and BSc in Chemistry from the University of Nairobi (1984). DR. DONNA PIDO has

been promoted to the position of Associate Professor in the Department of Design & Creative Media, the School of Creative Arts and Technologies (SCAT). Prof. Pido has served as the Chairman Department of Design and Creative Media. She holds a PhD in Applied Anthropology from Columbia University,



New York, Master of Philosophy Education from Columbia University (1987) and BA (Anthropology) from Indiana University, Bloomington (1966).

### **SENIOR LECTURERS**



DR. MARK KIMATHI has been

promoted to the position of a Senior Lecturer in the School of Mathematics and Actuarial Science, Department of Pure and Applied mathematics. He was appointed Lecturer at TU-K in May 2013. Dr. Kimathi holds a PhD in Industrial Mathematics from Technische Universtat Kaiserslautern, Germany, MSc. in Applied Mathematics Jomo Kenyatta University of Agriculture

and Technology, BSc. in Mathematics – Catholic University of Eastern Africa.He was a Lecturer at Kimathi University College of Technology, Tutorial Fellow at JKUAT. He has published four academic papers, supervised two PhD Theses, five Masters students.



#### **DR. GRACE K. NYAMBATI** has been promoted to

Senior Lecturer in the Department of Biomedical Laboratory Sciences. She holds a PhD in Parasitology from Jomo Kenyatta University of Agriculture and Technology (JKUAT), 2011, MSc (Parasitology/ Entomology), University of Nairobi (UON), and BEd. (Science), UON

#### DR. MICHENI E. MUTHONI

has been promoted to Senior Lecturer in the Department of Management Science and Technology. She holds a PhD in Information Technology from Masinde Muliro University 2015; MSc (Sunderland), BEd.(Kenyatta University); Dip (Kenya Institute of Management.)



**DR. GABRIEL J.O. MUSUNGU** has been promoted to Senior Lecturer in the Department of Music and Performing Arts. He holds a PhD in Musicology from the University of South Africa, 2010, MA (Music Composition) (Kenyatta University), 1999, and B. Ed. (Arts) (Kenyatta University, 1994



**DR. MERCY MWANIKI** has been promoted to Senior Lecturer in the Department of Food Science & Technology. She holds PhD in Agricultural Sciences, MSc, Diploma (Food Technology) Certificate (Post Harvest Technology)



#### DR. LEVI NG'ANG'A MBUGUA has

been appointed on promotion as Senior Lecturer in the School of Mathematics and Actuarial Science, Department of Mathematics. He holds a PhD in Applied Statistics from Jomo Kenyatta University of Agriculture and Technology (JKUAT 2013, Master of Science in Applied Statistics from University of Nairobi (2005) and a Bachelor of Education from Moi University (1997). Before his appointment at TU-K in July 2014 as a Lecturer in the Department of Statistics

and Actuarial Science, Dr. Ng'ang'a served at Maasai Mara University as a Lecturer and later was appointed Chairman, Department of Mathematics and Physical Sciences in the School of Science and Information Science. He has in the past lectured at Narok University College. He has also worked as an Adjunct lecturer at JKUAT, Kenya Methodist University, Moi University and TU-K. Between the year 1997 and 2010, Dr. Ng'ang'a worked at Teachers Service Commission as a Senior Graduate Teacher. In 2014, Dr. Ng'ang'a supervised one Master of Science student and one Ph.D student.He is a member of Kenya National Statistics Society. He has published one book and six academic papers.

#### DR. RAYMOND MUGWANYA has

been appointed Senior Lecturer in the Department of Information Systems and Technology, School of Computing and Information Technology. Dr. Mugwanya holds a PhD in Computer Science from the University of Capetown, South Africa (2013), a Master of Science in Computing from Liverpool University (2005), UK, and Bachelor of Statistics from Makerere University, Uganda (2001). Prior to his appointment, Dr. Mugwanya was



a Lecturer and Chairman, Department of Information Technology at Makerere University. He has previously worked as a Broadband Assurance, Faults Advisor at British Telecom PLC, United Kingdom and at Uganda Electoral Commission as a Data Processor. He has published six academic papers in refereed journals and has attracted research awards and scholarships for postgraduate students.

### SENIOR LECTURERS

DR. FRANCIS OGUYA has been appointed as Senior Lecturer in the Department of Community and Public Health, School of Health Sciences and Technology. Dr. Oguya holds a PhD in Epidemiology and Disease Control from Kenyatta University (2014), Master of Science in Applied Statistics - Biometry from University of Reading, United Kingdom (1991) and a Bachelor of Science in Information Technology, Physics and Mathematics from University of Nairobi (1985). Prior to his appointment at TU-K, Dr. Oguya was the Chief Systems Analyst/Statistician at National Museums of Kenya. He previously served as a Lecturer at Kenyatta University's School of Health

#### DR. SUSAN IMBAHALE has been

appointed on promotion as a Senior Lecturer in the Department of Applied and Technical Biology, School of Biological and Life Sciences. She was first appointed as Lecturer in the then Department of Biological Science and Technology of Kenya Polytechnic University College in 2011. She holds a PhD in Production Ecology and Resource Conservation/Medical Entomology from Wageningen University, The Netherlands (2009), a Postdoctoral in Vector Ecology (2010), Master of Science in Biology and Conservation (2004), Bachelor of Science in Zoology and Chemistry

#### DR. SALESIO MBOGO KIURA has

been appointed as Senior Lecturer in the Department of Computer Science, School of Computing and Information Technology. He holds a PhD from the University of Hamburg (2009), Master of Science in Information and Media Technologies from the Technical University of Hamburg, Germany (2003), Master of Science in Global Technology Management from Northern Institute of Technology (2002) and a Bachelor of Science from the University of Nairobi (1999).



He has supervised three (3) PhD students and five (5) Masters students to completion. He has published one book and seven academic papers in refereed journals. Before his appointment at TU-K, Dr. Mbogo served as the Dean, Faculty of Computing and Informatics at Kenya Methodist University. He has also worked as a Senior Lecturer at Embu University College where he held the position of Chairman of the Department of Mathematics, Computing and Information Technology. In addition, he served as a Research Assistant at the University of Hamburg, Germany.



Sciences and was later appointed the Chairman, Board of School of Health Sciences where he served up to year 2011. Dr. Oguya has held other positions in

(2002) both from University of Nairobi. She has served as an Ag. Chairman of the Department of Applied and Technical Biology at TU-K. From 2005 to 2009, Dr. Imbahale worked at Kenya Medical Research Institute (KEMRI) on her PhD project on integrated agriculture, water management systems and malaria in Western Kenya. She also carried out research projects at Nairobi National Park, Kenya Wildlife Service. She has supervised two Masters students to completion and published four academic papers in refereed journals. Dr. Imbahale has attended ten conferences and trainings both locally and internationally including private and publics sectors and has offered consultancy services to various organizations among them Lake Victoria Environmental Management Project, Swaziland Modes of Transmission Study, South Sudan Modes of Transmission Study, UNAIDS/GAMET-World Bank East Africa Study among others. He has supervised five doctoral students to completion. He has 15 academic publications in refereed journals and has been awarded three major scholarships and fellowships. He leads several professional organizations, locally and internationally among them Global Nodes Strategy Group, KenBIF Network (Chairman), Nodes Committee, GBIF (Vice-Chairman).



Society for Vector Ecology Conference in Turkey and Tropical Biology Association Conference in Madagascar.

**DR. ALICE WANJIRA KIAI** has been appointed as a Senior Lecturer in the Department of Language and Communication studies. School of Information and Communication Studies. Before her appointment at TU-K, Dr. Kiai was appointed a Tutorial fellow in 1998 at Catholic University of Eastern African (CUEA) rising to a Senior Lecturer by 2017. Between 1994 and 1996 she worked as a



Research Assistant under the project 'Radio Listening Groups' at the University of Nairobi. She holds a PhD in English language Teaching and Applied Linguistics from University of Nairobi (2012), a Masters in Linguistics (1996) and a Bachelor in Linguistics and literature both from UoN (1994). She has worked as member of the Editorial board, Eastern Africa Journal of Humanities and Sciences and in several occasions appointed Acting Dean in the Faculty of Arts and Social Science at CUEA. Dr. Kiai is currently supervising one PhD student and four MA students, published four articles, co-authored five books and presented 10 papers in conferences and seminars.

### LECTURERS



**DR. WYCLIFFE NYAMONGO ONKOBA** has been appointed a Lecturer at the Department of Biomedical Sciences, School of Health Sciences and Technology. Dr. Onkoba holds a PhD in Public Health from the University of KwaZulu-Natal, South Africa, Master of Science in Applied Parasitology from the University of Nairobi and Bachelor of Science in Medical Laboratory Sciences from Maseno University. Prior to his appointment, Dr. Onkoba served as a sessional Lecturer at Masinde Muliro University of Science and Technology, Jaramogi Oginga Odinga University of Science and Technology and Mount Kenya University. He has published 14 peer reviewed articles in refereed journals and has presented seven papers in conferences. He has supervised four (4) Masters students to completion. Dr. Onkoba is a member of various professional bodies including Kenya Society of Immunologists.

**DR. JUDITH WASWA** has been appointed as a Lecturer in the Department of Nutrition and Dietetics, School of Health Sciences and Technology. Before her appointment at TU-K, Dr. Waswa was a Lecturer at Karatina University. Between the year 2013 and 2015, Dr. Waswa lectured at Shamberere Technical Training Institute and has served as a Technical Manager at Kenya Nutrition and Dieticians Institute (KNDI). Dr. Waswa holds a PhD in Applied Human Nutrition from the University of Nairobi (2014), a Master of Public Health from Moi University (2010), Bachelor of Science in Agriculture and Home Economics from Egerton University (1996). She has supervised three Masters students to completion. She also has eight (8) publications in refereed journals and has presented five papers in workshops and conferences.





**DR. QUIN ELIZABETH AWUOR** has been appointed on promotion as a Lecturer in the Department of Language and Communication Studies, School of Information and Communications Studies. Until her promotion, Dr. Awuor was an Assistant Lecturer in the same department, and has also served as Ag. Chairman of the Department. Dr. Awuor holds PhD in Linguistics from Kenyatta University, Master of Arts in Applied Linguistics from Victoria University of Wellington, New Zealand and Bachelor of Education in Linguistics and Literature from the University of Nairobi. She has published two articles in refereed journals. She has in the past worked as a Lecturer at St. Paul's University and as a Tutorial Fellow at Victoria University of Wellington, New Zealand.

**DR. LUCY MUDIWO OMBAKA** has been appointed as a Lecturer in the Department of Chemical Science and Technology, School of Physical Sciences and Technology. She holds a PhD in Chemistry from the University of KwaZulu-Natal, South Africa, a Master of Science in Chemistry and a Bachelor of Science in Education Chemistry both from Egerton University. Prior to her appointment, Dr. Ombaka was a Lecturer at Dedan Kimathi University of Technology. She had previously lectured at Bukura Agricultural College and also worked as a part-time Lecturer at Egerton University. She has published five (5) papers in refereed journals and has supervised one (1) PhD student and one (1) MSc student to completion. She has carried out three research projects and is a member of Kenya Chemical Society among other professional bodies.





**DR. SAGWA E. VIDIJA** has been appointed as a Lecturer in the Department of Business Administration. He holds a PhD in Business Administration from UoN, 2014 MSc (Personnel Management), University of Poona, 1993 BA (Public Administration), Punjabi University, India (1991).



DR. LILLIAN INGUTIA OYIEKE has been appointed as a Lecturer in the Department of Library and Information. School of Information and Communication Studies. Prior to her appointment, she was a Lecturer and an associate at the University of Pretoria between June 2013 and December 2015. In 2004, she was Information Resource Manager at the Institute for Justice and Reconciliation, Cape Town South Africa. Dr. Ovieke holds a PhD in Library and Information Science from the University of Pretoria, South Africa (2015), Master of Information Science from the University of Pretoria, South Africa (2007), a post-graduate diploma in Library and Information studies and a Bachelor of Arts from Moi University (1992). She has five (5) publications in refereed journals and has presented eight papers in local and international conferences.

#### **DEAN OF STUDENTS**

**PROF. OMONDI OKETCH** is the new Director, Student Support Services. Prior to his appointment, he was an Associate Professor and Chairperson, Department of Language and Communication Studies. Before joining TU-K, Oketch worked as a part-time Lecturer at Kenyatta University, External Examiner at the University of Western Cape, South Africa, and Adjunct Lecturer at the United States International University. He also lectured at Bondo University College, Kenya Polytechnic University College, Catholic University of Eastern Africa, Moi University, Maseno University among others. Prof. Oketch holds a PhD in Linguistics from the University of Western Cape, (2006), Master of Arts (English) from Maseno University (2000) and a Bachelor of Education (English Literature) from Moi University (1994). He has 17 publications in peer reviewed journals and has authored and co-authored three (3) books. He is a member of the Association of Translation and Interpreters.





#### HEALTH AND WELNESS SERVICES

**DR. ARGWINGS O. KODHEK** has been confirmed as the Director, Health and Wellness Services at the Technical University of Kenya. Dr. Kodhek has a wide range of experience having worked as a Medical Practitioner in public and private health institutions including University of Nairobi Health Services, AAR Health Services-Lokichoggio, Pumwani Maternity Hospital

where he was the Deputy Medical Officer in charge of Clinical Services and Medical Officer in-charge of Kangundo sub-District Hospital. He holds a Master of Science in Clinical Epidemiology from Kenyatta University, Bachelor of Medicine and Bachelor of Surgery from University of Nairobi and Certificate in Advanced Trauma Care (ATC). He attended Nakuru High School for his 'A' Levels.

#### **RECORDS & ARCHIVES**

ALPHONCE NYONGESA JUMA has been appointed Records Manager/Archivist at the Technical University of Kenya. He holds a B.Sc. (Hon) in Information Sciences in 1994 and a Master of Philosophy in Information Sciences (Records and Archives Management) 2013. He is currently pursuing a Doctor of Philosophy in Information Sciences (Records and Archives Management) at Moi University. In 2003, he was the Deputy Head teacher at Ruiru Star High School where he taught Mathematics, Physics, Geography and Computer Studies. In addition he taught at Incorero University from 2007 to 2011. He has worked with the UN-Habitat as an Information

Management Assistant where he successfully implemented the UN-Habitat file plan and network file structure as the basis for effective records management. He also developed various records and archives management training manuals, developed a location database for the UN-Habitat records to enhance easy access and participated in the implementation of the Urban Gateway - Knowledge Management Portal for UN-Habitat. In 2013 he worked with Mwalimu National as a record manager where he was incharge of formulating relevant information management policies in support of overall Society's vision and mission





#### **ESTATE & SPACE MANAGEMENT**

**MRS. RAHAB WANJOHI-GICHUNGI** has been appointed the Manager, Estate and Space Management. Mrs. Gichungi has over 27 years experience in Property Management, specialising in residential, commercial and institutional properties. Before her appointment at TU-K, Rahab had held other appointments including the General Manager at Kisima Real Estate between the year 2009 and 2014, Administration Manager at Daystar University and Church Administrator at Lavington United Church. She holds a Master of Arts in Valuation and Property Management from University of Nairobi (2005), Master of Arts in Counseling Studies from Nairobi International School of Theology (2008), a Bachelor of Arts in Land Economics (1985). She is currently pursuing a PhD in Leadership Studies at the International Leadership University. Mrs. Gichungi is a member of Institute of Surveyors of Kenya (ISK).

#### **EXECUTIVE SECRETARY**

**GLADYS OBIERO** has been appointed Executive Secretary in the Vice-Chancellor's office. In 2004 she studied Diploma in Secretarial Studies at Graffins College, later joining Kenya School of Professional Studies in 2007 to study Diploma in Business and Office Management. In 2012, she joined Jomo Kenyatta University of Agriculture and Technology to study Bachelor in Business and Office Management. Previously, she worked at Mount Kenya University as an Administrative Assistant to the RegistrarAcademic affair department. Her duties were managing the calendar of the Registrar including arranging appointments and meetings, booking meeting rooms, and organizing workflow. In 2010 to 2014 she worked with Incorero University,

School of Information and Communication Technology as an Administrative Assistant. Gladys was also the Secretary to the Deputy Principal and Chair Office Management Department in 2008 where she was actively involved in the migration to university through preparation of documents presentation. In 2016, she worked as an office Manager for Strathmore Business School to the Vice Dean, Research and Innovation and the Director, Faculty Affairs. She was incharge of coordinating activities in the Dean's Office by providing Secretarial and Support services, technical assistance, prioritising, assigning, monitoring and evaluating work progress and outcome to ensure timely service delivery.



## PROF. AKUNO APPOINTED DVC AT THE CO-OPERATIVE UNIVERSITY OF KENYA

#### PROF. EMILY ACHIENG AKUNO

has been appointed Deputy Vice Chancellor - Academic Affairs at Cooperative University of Kenya. Until her appointment, Prof. Akuno was the the Executive Dean of the Faculty of Social Sciences and Technology (FSST) at TU-K.

Akuno was appointed to the position of Executive Dean in October 2012. During her tenure as Executive Dean, the Faculty experienced tremendous growth in students' numbers and the number of academic programmes on offer. She has been an active member of the University Executive Management Board and University Senate.

As the Executive Dean, Professor Akuno was responsible for five (5) Schools and one Centre each headed by a Director. The five schools comprise of eighteen (18) departments each headed by a Chairman. She was incharge of all matters in the faculty relating to programme development, research activities, staff recruitment, development and retention, curriculum initiatives, academic processes of teaching, learning, assessment and processing of examinations. She was also responsible for overseeing matters of quality assurance through monitoring of teaching and learning and ensuring the faculty's contribution to the University's performance contract through conference attendance, publications and conformity



Prof. Emily Achieng Akuno

to quality standards.

Akuno is a professor of Music at the Technical University of Kenya. She joined TU-K in January 2012 and was appointed the Director, Centre for Creative and Cultural Industries. She was responsible for setting up the framework for the establishment of the Centre whose focus is linking the institution with the creative industry/economy. She played an instrumental role in the development of three (3) certificate and diploma programmes to be mounted by the University through the Centre.

In addition to this, she is an accomplished scholar in the area of Music as evidenced by sixteen (16) publications in peer reviewed journals and has authored and co-authored twenty two (22) books and book chapters. She has successfully supervised nine (9) PhD and twenty two (22) Masters students to completion. She has also attended numerous local and international conferences where she has made presentations/performances.

She was extensively involved in the community service and outreach initiatives of the University. She has been the head of the Entertainment sub-Committee during the University functions such as award of Charter and University graduation ceremonies. She is currently the Treasurer, International Music Commission, a position she has held since 2012.

Prior to joining the TU-K, Professor Akuno was head of School at the University of KwaZulu Natal, Durban, South Africa between 2007 and 2010. She also worked at Kenyatta University where she held various senior positions including: - Dean of Students (2005-2006), Director, School of Music (2001-2004) and Chairman (1998-2000).

Professor Akuno holds a PhD in Music from Kingston University, Surrey, United Kingdom (1997), a Master of Music degree from Northwestern State University, USA (1988) and a Bachelor of Education (Arts) degree from Kenyatta University (1986). She sat for her Kenya Advanced Certificate of Education and East African Certificate of Education at Alliance Girls' High School, 1981 and 1979 respectively.

## SH200M AIRCRAFT ENGINE TO BOOST AERONAUTICAL TRAINING AT TU-K



CF6-80A2 aircraft engine

he Technical University of Kenya (TUK) has received a CF6-80A2 aircraft engine that powers Airbus A310 and Boeing.

The engine worth Sh200 million was donated by General Electric (GE) Aviation (USA) through the facilitation of Kenya Airways (KQ).

TU-K's Aerospace and Aviation Engineering programme students can now afford hands-on to train on high tech aviation training devices and materials including the engine and maintenance training books, training aids, reading materials, used aircraft parts and aircraft manuals donated by KQ and Boeing.

Speaking during the handover ceremony held at TU-K, Kenya Airways, Strategy and Performance Management Director Thomas Omondi said, "Our donation today further strengthens our commitment



Prof. Francis Aduol receiving KQ Airplane model from the airline Strategy and Performance Management Director Mr. Thomas Omondi.

#### **AERONAUTICAL ENGINEERING**



TU-K Chairperson of the Council Dr. Halima Saado Abdulahi unveils a CF6-80A2 aircraft engine manufactured by General Electric (GE) Aviation (USA). Looking on is Regional Sales Director for GE Aviation in Africa Dr. Rajiv Bissessur (Second Right), VC Prof. Francis Aduol (R), Representative of the Ministry of Education Mr. Johnson Nanjakululu and other guests.

to ensuring a stronger foundation of aeronautical knowledge, skills and more experience to aviation technicians and engineers even as they prepare for job market either with us or elsewhere. We are extremely happy to support the next generation of aircraft maintenance engineers".

On his part, Regional Sales Director for GE Aviation in Africa Dr. Rajiv Bissessur said: "As Africa's aviation industry continues to grow, the need for skilled aviation professionals in the region is also on the rise, and GE Aviation is proud to play a role in the skill development efforts underway at TU-K."

Dr. Rajiv emphasised that the donated CF6 engine will enable aeronautical engineering students to experience hands-on learning with one of the most popular wide-body aircraft engine in service today and increase the pool of talented aviation experts that will be needed to service the needs of the airlines in Africa and around the world.

Receiving the training equipment, University Council Chairperson, Dr. Halima Saado Abdulahi thanked GE, KQ and the Boeing for their kind gesture. She urged the university to utilise the equipment for the benefit of students to serve this country and humanity in general. "Let's ensure that we make proper use of the equipment as we strive to achieve our mandate and contribute to Kenya Vision 2030," she said.

Her statement was echoed by the Vice-Chancellor Prof. Francis Aduol who hailed the partnership and said, "This donation will provide the much needed practical and research orientation to our engineering students and therefore increase their competitiveness. This will make us the University of Choice for aspiring aviation professionals in the region".

A representative of Education Cabinet Secretary, Mr. Johnson Nanjakululu called on local universities to provide technological transformation through research and training and

The CF6 engine will enable aeronautical engineering students to experience hands-on learning with one of the most popular wide-body aircraft engine in service today. offer solutions to problems bedeviling the country. He urged the industry to partner with academia in order to improve standards of teaching and training.

TU-K is one of the three universities in sub-Saharan Africa that offers Bachelor of Aeronautical Engineering.

TU-K is the historical home of aviation education and training in Kenya, dating back to 1968 when the first batch of students were admitted into the City & Guilds of London Institute's Aeronautical Engineering Full Technological Certificate Programme at the predecessor founding college of the Kenya Polytechnic. This programme continued to 1980s and produced aviation maintenance specialists who managed aircraft maintenance programmes in the East Community African organisations. The university mounted Bachelor of Aeronautical Engineering in 2010. The programme's first cohort graduated with B.Eng. (Aero) Honours degrees in December 2015. Many of the graduates are already employed in aviation organisations that include airlines, Maintenance and Repair Organisations (MROs) and the Kenya Defence Force (KDF).

## **TU-K ACQUIRES DRONES**







Director of the School of Geospatial Sciences Prof. Gordon Wayumba with Dr. Robert Wayumba, a Lecturer in the School of Surveying and Geospatial Sciences and Mr. Peter Ochien'g Odwe a graduate assistant in the School briefs the VC Prof. Francis Aduol on how the Unmanned Aeriel Vehicle (UAV) operates.

Dr. Wayumba and Mr. Odwe testing the UAV.

he Technical University of Kenya (TU-K) has received two Unmanned Aerial Vehicles (UAVs) through a European Union Horizon 2020 Project, known as its4Land. The UAV system includes: a laptop which is loaded with all the required software, two fixed wing drones, a launcher and an antennae which has an inbuilt Global Positioning Systems (GPS).

The main aim of the project is to conduct research on the use of geospatial technologies for improving land tenure security in Eastern Africa. According to a World Bank Report that was released in 2003, only about 10% of land in Sub-Sahara Africa has been formally registered. As a result, many people are unable to gain from the benefits of land registration.

Dr. Robert Nelson Wayumba, a Lecturer in the School of Surveying and Geospatial Sciences and Mr. Peter Ochien'g Odwe a graduate assistant in the same School, attended a training in project evaluation of the performance of Unmanned Ariel Vehicle (UAV) in Enhancement of the land tenure security in France.

According to the Director, School of Geospatial Sciences, Prof. Gordon Wayumba, land adjudication has immense benefits. It spurs economic growth and development, ensures effective land administration system, secured land ownership, increase access to credit, reduces land disputes and is useful for informal settlement regularisation.

#### "This will be a powerful tool for acquiring accurate spatial information, mapping and solving the big problem of rural land adjudication process." – Prof. Francis Aduol

The UAV will be a useful tool for teaching and research in various schools and departments within TU-K. "This will be a powerful tool for acquiring accurate spatial information, mapping and solving the big problem of rural land adjudication process," adds the VC.

In the School of Surveying and

Geospatial Sciences, the students will learn how the equipment can be used for land adjudication, Geographic Information Systems (GIS), Photogrammetry and Remote Sensing. Aeronautical students will benefit by learning configuration of the aeroplanes and will thereafter design a prototype. Mechanical and Electrical Engineering students will learn components such as wiring, circuits among others. The Computer Science students will benefit by learning programming of the drones.

There are various international and local partners in the project. In Europe, key researchers are from the University of Twente in the Netherlands, KU Leuven in Belgium, University of Munster and Hans Luftfild both in Germany. In Ethiopia, the project is being led by a team from Bahir Dar University, and in Rwanda it is being hosted by INES Ruhengeri University. TU-K has partnered with other stakeholders such as the Ministry of Lands, National Land Commission & Regional Centre for Mapping of Resources for Development (RCMRD).

## THE HISTORY OF DRONES



n unmanned aerial vehicle (UAV), commonly known as a drone, unmanned aircraft system (UAS), or by several other names, is an aircraft without a human pilot aboard. The flight of UAVs may operate with various degrees of autonomy: either under remote control by a human operator, or fully or intermittently autonomously, by onboard computers.

Compared to manned aircraft, UAVs are often preferred for missions too "dull, dirty or dangerous" for humans. They originated mostly in military applications, although their use is expanding in commercial, scientific, recreational, agricultural, and other applications, such as policing and surveillance, product deliveries, aerial photography, agriculture and drone racing. Civilian drones now vastly outnumber military drones, with estimates of over a million sold by 2015.

Multiple terms are used for unmanned aerial vehicles, which generally refer to the same concept. The term drone, more widely used by the public, was coined in reference to the resemblance of navigation and loud-and-regular motor sounds of old military unmanned aircraft to the male bee. The term has encountered strong opposition from aviation professionals and government regulators.

UAV innovations started in the early 1900s and originally focused on providing practice targets for training military personnel. UAV development continued during World War I, when the Dayton-Wright Airplane Company invented a pilotless aerial torpedo that would explode at a preset time

The earliest attempt at a powerec UAV was A. M. Low's "Aerial Target" in 1916.

The first scaled remote piloted

UAV innovations started in the early 1900s and originally focused on providing practice targets for training military personnel. UAV development continued during World War I. vehicle was developed by film star and model-airplane enthusiast Reginald Denny in 1935. More emerged during World War II – used both to train antiaircraft gunners and to fly attack missions. Nazi Germany produced and used various UAV aircraft during the war.

In 1959, the U.S. Air Force, concerned about losing pilots over hostile territory, began planning for the use of unmanned aircraft.Planning intensified after the Soviet Union shot down a U-2 in 1960. Within days, a highly classified UAV programme started under the code name of "Red Wagon".The August 1964 clash in the Tonkin Gulf between naval units of the U.S. and North Vietnamese Navy initiated America's highly classified UAVs (Ryan Model 147, Ryan AQM-91 Firefly, Lockheed D-21) into their first combat missions of the Vietnam War. When the Chinese government showed photographs of downed U.S. UAVs via *Wide World Photos*, the official U.S. response was "no comment".

In 2013 at least 50 countries used UAVs. China, Iran, Israel and others designed and built their own varieties.

#### **15<sup>TH</sup> UNIVERSITIES EXHIBITION**



Education Cabinet Secretary Dr. Fred Matiang'i.

Participants follow proceedings during the the opening ceremony of the 15<sup>th</sup> Universities Exhibition and Discourse (UEED) at the Catholic University of Eastern Africa.

ducation Cabinet Secretary, Dr. Fred Matiang'i has underscored the Government's commitment to upholding the quality of education in the country.

Speaking during the opening ceremony of the 15<sup>th</sup> Universities Exhibition and Discourse (UEED) organised by the Commission for University Education (CUE), Dr. Matiang'i challenged universities to invest in quality research and training.

He said, said that the Government was ready to put resources into higher education in order to strengthen the quality, adding that the move will ensure that the country realizes Vision 2030.

He said, "We are ready to support the capacity in technical and university education. However, it is worth to note that no Government the world over has enough resources to fund the entire population of a university. Therefore be innovative in generating income."

The Chairman of the Council of Public Universities, Prof. Francis Aduol, who is also the Vice-Chancellor of the Technical University of Kenya, thanked CUE for the just concluded Special Quality Audit Report saying it will help universities set higher standards of education and research.

He called upon the public and private universities to collaborate in areas of research and teaching saying the move will solve some of the challenges faced by the higher education sector.

Principal Secretary, State Department for University Education, Ministry of Education, Prof. Collette Suda challenged universities not to concentrate on generating money but instead focus on training and producing

The public and private universities to collaborate in areas of research and teaching. The move will solve some of the challenges faced by the higher education sector. –Dr. Fred Matiang'i graduates that are market compliant.

The CS who visited the TU-K stand said he was impressed by innovations by our students. He singled out an Exposing Concealed Communication (Cellphone Detector), used to detect mobile phones usage by students during an examination. He said the device, if well packaged, can be used as a security measure to curb crime. He added that students' innovations should be patented to avoid violation of copyright.

The CS was taken round the TU-K stand by TU-K Deputy Vice-Chancellor in-charge of Academics Research and Students (ARS), Prof. Paul Shiundu. Present were DVC Administration, Planning and Infrastructure, Prof. Joseph Kiplang'at, Faculty of Engineering Science and Technology Executive Dean Prof. Alex Muumbo, Faculty of Social Sciences and Technology Executive Dean, Prof. Emily Akuno and Faculty of Applied Sciences and Technology Executive Dean, Prof. Francis Gatheri among other senior management.

## **TU-K PARADES ITS BEST AT VARSITY FAIR**

## Exposing Concealed Communication Devices

#### Exhibitor: Boniface Mutegi Kithinji

Universities and institutions of higher learning are striving to stop exam cheating and produce credible results. Media houses, Security institutions such as military barracks as well as correctional facilities such as prisons prevent photographing and recording of information for security reasons. The evolution of mobile phones therefore poses a great threat to security of individuals as well as institutions.

Boniface Mutegi Kithinji, a  $4^{th}$  year student pursuing a Bachelor of Technology, Technical and Applied Physics, is confident that crime can be tamed. The student has come up with a gadget that can detect a cellphone in an examination room and in other settings.

"This can sense an activated mobile phone from a distance of one and a half meters. Therefore, it can be used to prevent use of mobile phones in an examination room, hospital or in restricted areas," he explains.

He adds that the system is able to detect both the incoming and outgoing calls, short messages known as SMS, video transmission, among others. It is also able to sense when the phone is connected to the internet or is on silent mode.

"The advantage of the cell phone detector is that it is smaller in size and can detect a hidden mobile phone," he emphasizes.



#### How the detector works

It detects Radio Frequency (RF) transmission signal from an activated mobile phone, by sounding a beep alarm and the LED blinks. The alarm continues until the signal transmission ceases. An ordinary RF detector using tuned IC circuit is not suitable for detecting signals in the Gigahertz (GHz) frequency band used in a mobile phones. The transmission frequency of mobile phones ranges from 0.9 to 3 GHz a wavelength of 3.3 to 10 cm. So a circuit detecting gigahertz signals is required for mobile bug. The lead length of the capacitor is fixed as 18 mm with a spacing of 8mm between the leads to get the desired frequency.

#### **Toilet Seal Blocks**

### Exhibitor: Salome Vonick Kuchio, Bachelor of Science in Human Nutrition and Dietetics fourth year student

When Salome Vonick Kuchio found a snake curled at their home toilet bowl, she vowed to find a solution to secure her family from danger they were often exposed to from open toilets.

From this bad experience, she took up the challenge to solve this menace. She can now send a Toilet Seal Block she innovated to her family. Snakes and other creatures that may track through sewerage system can be blocked from getting to the house through the toilet. Besides, the heavy seal that can be used in both house toilet and pit latrines also helps in children's safety.

"The seal is made of metal and wood to make it heavy. This way, children who are oblivious of snake dangers cannot be able to lift it," Kuchio said adding that this customised innovation best fits usage in upcountry.

The seal is also layered with rubber and fiber to seal-off bad gases escaping and to protect the wood and metal from degenerating. In her quest in ensuring community health and safety especially in the rural areas, Ms. Kuchio is looking forward to working with development partners and industry players in adopting and commercialising this innovation.



#### KenyaOne: A mobile phone technology to report vices in realtime

#### Exhibitor: Evans Onyango, a Fourth year student in Bachelor of Business Information Technology (BBIT)

Mr. Onyango has developed an application where Kenyans across the country can report crime, terrorist activities, corruption among other vices in real-time.

KenyaOne application, downloadable on smartphones is one-of-a kind technology expected to ease information breakdown from citizenry to various government agencies.

During the project development and research, Mr. Onyango noted that staff working for governmental bodies and independent agencies cannot effectively cover all parts of the country and several fora where such offences can be committed.

"For instance the Police, Ethics and Anti-Corruption staff, Anti-terror units, National Cohesion and Integration Commission among others cannot be evereywhere crime is committed. From this shortfall, KenyaOne was born."

#### How it works

Development of this technology is borrowed from telecommunication engineering and Software development.

First, the users download and install KenyaOne application on their smartphones then proceed to listed sections that enable submission of text and upload of available media including pictures, audio and video.

The users are then requested to indicate the location where crime has been committed and are further asked to select acting authorities from the list provided and finally submit.



"For the purposes of confidentiality, users have an option to submit their names or conceal them," he added.

He notes that this technology comes in handy ahead of this year's General Election in Kenya where hate speech cases are rampant and may escalate to violence.

Mr. Onyango looks forward to partnering with industry, government agencies as well as non-governmental players for capacity building and adoption of this technology.

#### Kenya Online Booking System (KOBS)

Exhibitor: Muuyi Andre Barasa, Second year student Bachelor of Business Information Technology (BBIT) www.kobs.co.ke

Mr. Muuyi Andre Barasa has developed an onlinebased platform students can use to sample hostels on their smartphones and computers.

Kenya Online Booking System (Kobs) is a webbased platform that has mapped out hostels of interest to students in Nairobi.

To be able to interact with Kobs, users have to login to the website; www.kobs.co.ke

As a pilot project, Mr. Barasa has plotted out five hostels within Nairobi complete with pictures of the rooms, recreational facilities, prices, services – meals, internet connectivity among other amenities of interest.

"We are now working on a programme that give an option to interested students to cost share," said Mr. Barasa.

For better visual interaction with the platform, Barasa notes that they are also developing a threedimension navigator that gives details of the facilities' space.

He adds that software project can be replicated in recreational facilities including hotels in various cities and towns.

#### **15<sup>TH</sup> UNIVERSITIES EXHIBITION**



The VC Prof. Francis Aduol (in a suit), flanked by DVC-ARS Prof. Paul Shiundu (on his left), Executive Dean FSST - Prof. Emily A. Akuno (on his left), among other university staff and students pose for a picture during the exhibition held at the Catholic University of Eastern Africa.

#### **3D** Printer

#### Exhibitors: Gillian Kenyani and Cornelius Sifa, both final year students pursuing Bachelor of Engineering in Electrical and Electronics

Gillian and Cornelius, have embarked on research to find ways in which 3D printing technology can be consumed by local industries.

The technology is already gaining commercial popularity in US, Europe & China.

From the two-dimension printing on a flat surface, consumers can now have images they wish printed with three dimensions technically termed as x, y and z-axis.

"This means one can print models they wish to, but



unlike other kinds of printing, this technology uses plastic material to build up layers of the 3D image," said Kenyani. The duo has assembled the printer on a small-scale capacity mainly for research in prototyping and molding.

#### How the printer works

The user gets a soft image, converts in to 3D, can either be scanned using a specialised scanner or graphically generated using available software.

The image is converted to graphical format, the repeat host software slices it into layers technically termed as .gco, from this, an image ready for print is acquired.

"For this technology, we use special plastic material in printing, they have qualities that suit our mechanical processing including strength, melting and cooling capacities," said Cornelius.

3-D printing processes borrow technology from automation, a programme responsible for simulation conditional actions.

"The programme reads image coordinates and generates respective x, y and z moves, printing nozzle using these paths lay the prints," notes Kenyani.

The duo is already engaging their Mechanical Engineering colleagues to help build a bigger frame to use in assembling improved 3D printer.

"In countries like China, infrastructure developers are using this technology to build massive projects like bridges," Cornelius concludes.

Other countries are now researching on bio-printing technology including trials on print body tissues like kidney, liver using cultured cells that can be used in developing alternative medical conditions solutions.

#### **Teardrop Collection**

#### Exhibitor: **Ombaso Benard Mirera**

Boardrooms are known to host serious meetings and discussions. Sometimes they can be monotonous. To kill boredom, a Technical University of Kenya student has come up with a Teardrop Collection.

Ombaso Benard Mirera, a 3<sup>rd</sup> year student pursuing a Diploma course in Fashion and Textile Design, has come up with an innovation of a parrot cage, designed in the shape of a teardrop. And there is also a coffee table.

"The 3D teardrop shape is used to create an executive boardroom table and a bird cage," he says.

Human beings tend to respond to nature with a smile or rather a sense of happiness especially after a sorrowful experience.

In the boardroom environment he says, the parrot can imitate the Chairman of the meeting and repeat the statements later therefore bringing laughter in the room and adding a soft touch to the discussion.



"What the chair needs to do is to maintain eye contact with the parrot especially when emphasising on some phrases. The parrot will repeat the same," adds the innovator.

Mirera explains that the cage has got a hanger where the Chairman can hang his coat as a sign of authority.

And there is a boardroom table

which contains a self made clock, below the teardrop shaped in Perspex glass.

The teardrop represents deep sorrow and therefore the clock symbolises a sigh of relief. As the clock ticks, the minute hand encourages the sad person that, 'Despite what you are going through, just press on.'



Architecture student at TU-K Mr. Caleb Otieno displays model impressions he built.

## CHANCELLOR: PRODUCE GRADUATES WITH RIGHT ATTITUDES AND SKILLS



Chairman of the Council, Prof. Godfrey Nguru

Chancellor Dr. Manilal Chandaria

ore than 3,000 students from the Technical University of Kenya (TU-K) were conferred with degrees and awarded diplomas and certificates in various fields during two separate graduation ceremonies conducted by the University in December 2016.

The Chancellor Dr. Manilal Chandaria, congratulated graduands for working hard and completing their courses. He asked them to use knowledge and skills acquired to change the society.

The Chancellor challenged staff to invest in research and offer quality training that will impact the society positively. He challenged lecturers to help in producing graduates with the right attitudes, knowledge and skills.

"Conduct research that can change the society, instead of researching for the sake of it. Train students who will be market-compliant, people who view a job as honourable but not just a short-cut to riches" he said Dr. Chandaria urged young people to ensure peaceful election, reminding them that they have a responsibility to ensure that the country has a peaceful General Election this year 2017.

"Young Kenyans should feel ashamed of getting involved in tribalism and viewing corruption as fashionable. To be an achiever in life, you must be focussed and work hard to realise your goals," added he.

The Chairman of the Council Prof. Godfrey Nguru appealed for increased funding for TU-K saying past capitation has been far too low for the financial needs of the University.

"Young Kenyans should feel ashamed of getting involved in tribalism and viewing corruption as fashionable. To be an achiever in life, you must be focussed and work hard to realise your goals." - Dr. Manilal Chandaria "This makes it difficult for the University to meet its monthly financial obligations and to effectively fulfill its mandate. In this regard I wish to appeal to the Ministry of Education to address this issue urgently to enable the University to adequately offer adequate services to students as well as meet its other financial obligations."

Prof. Nguru advised graduands against idleness after graduation saying it could lead to depression and other social vices. He asked them to volunteer in different areas since it will be a way of acquiring skills that are relevant to the job market.

"Jobs are not always easy to come by. Some of you may have to search for them for quite awhile. Don't be discouraged. Remember the saying "when the going gets tough, the tough gets going". Don't allow yourself to be idle at home. This could lead to depression. Do something! Be ready even to volunteer your services because in the process you are serving God and humanity," said Prof. Nguru.

## **TVET 'CHAMPION' HONOURED**



The Chancellor, Dr. Manu Chandaria hands a certificate to Bomet Women Representative, Hon. Cecilia Ng'etich after she was conferred with an honorary degree. On the left is Council Chairman, Prof. Godfrey Nguru, VC, Prof. Francil Aduol (Center) and DVC-ARS, Prof. Paul Shiundu.

on. Cecilia Ng'etich, the Bomet Women Representative in Parliament, was awarded an honorary doctorate by TU-K during the 4<sup>th</sup> Graduation ceremony held on December 20, 2016. This was in recognition of her role in championing Technical and Vocational Education and Training (TVET) programme in Kenya.

Hon. Ng'etich, the current Chairperson of the Permanent working Group on Vocational training in Kenya, was awarded an honorary degree of Doctor of Technology by the Chancellor, Dr. Manu Chandaria. She has taken lead role in TVET engagement with the government, private sector, academia, and development partners. The Permanent Working Group is responsible for overseeing the efforts of Kenya's

vocational training transformation through the rebranding of TVET.

Hon. Ngetich is also the Chairperson of the steering committee charged with preparations for the National Conference on Technical Education and Training scheduled for later this year as part of the rebranding efforts of TVET. The conference aims at sensitising and encouraging parents and students to embrace technical education in a bid to produce critical mass of trained and skilled personnel suitable for the job market.

In her effort to promote economic empowerment of the youth and industrial development in Kenya, in 2013, Hon. Ngetich sponsored and actively promoted a Bill in Parliament that would entrench the recognition of technical and vocational education and training in the engineering field. The Engineering Technology Bill sought to enact an Act of Parliament that would create an avenue for the professional recognition of technologists engineering and in Kenya. Through technicians this, the education and training of engineering technologists and technicians at technical training institutes, national polytechnics, and technical universities would receive a stamp of recognition from the public as the main users of these cadres of professionals.

Hon. Ng'etich defended the Bill through the various committees and during sessions of Parliament. In August 2016, the Bill was finally assented to by President Uhuru Kenyatta.

The Engineering Technology Act 2016 provides for the regulation of the

#### **4TH GRADUATION CEREMONY**

professional activities of engineering technologists and technicians through the Kenya Engineering Technology Board. It further grants professional recognition to engineering technologists and technicians through licensing to practice as such.

Through this effort, Hon. Ng'etich has unreservedly earned the title of 'Champion of TVET' in Kenya. The Engineering Technology Act, 2016 will certainly accelerate the development of the Engineering Technicians and Technologists profession and the realisation of Vision 2030 in Kenya, read a section of her citation before she was conferred with the degree.

In championing the cause of TVET, Hon. Ng'etich has boosted TU-K's technical education and training mandate, whereby graduates of our engineering TVET programmes shall now receive professional recognition. This will help the nation achieve its objective of providing multiple pathways to achieving continuing and higher education.

Hon. Ng'etich holds a Master of Business Administration (MBA) and a Bachelor of Education (Science), 1985 both from Kenyatta University. She is currently pursuing a Doctor of Philosophy (PhD) degree at Tangaza



Hon. Cecilia Ng'etich

College, a constituent college of the Catholic University of Eastern Africa, in the area of Governance and Social Transformation. In her career, she has undertaken numerous professional courses in pedagogy, administration and management. Hon. Ng'etich served in the teaching profession for twenty-seven years. In 2009, she was appointed Director of the Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA), under the Ministry of Education, Science and Technology, in Nairobi.

In 2013, Ng'etich was elected Woman Representative of Bomet County. In Parliament, she has served as the Chair of the Caucus of the 47 County MPs; the Catholic Members of Parliament Spiritual Support Initiative (CAMPSSI); member of the powerful House Business Committee; and member of the Parliamentary Committee on Education, Science, Research and Technology, where she also chairs the sub-committee on Technical and Vocational Education and Training (TVET).

As part of her philanthropic activities, Ng'etich continues to serve in different capacities and roles in community organisations, and religious, parastatal and professional bodies. Hon. Ng'etich, together with her parliamentary colleagues, championed the cause of and worked hard for the establishment of a fund to be managed by County MPs as Patrons.



From left: DVC - TIP, Prof Suki Mwendwa, DVC - API, Prof. Joseph Kiplagat, Hon. Cecilia Ng'etich, VC, Prof. Francil Aduol and DVC-ARS, Prof. Paul Shiundu after Hon. Ng'etich was conferred with an honorary degree.

#### **4<sup>TH</sup> GRADUATION CEREMONY PICTORIAL**









- 1. Academic procession
- 2. Section of the graduands.
- 3. Members of the university choir engage the Chancellor Dr. Manu Chandaria and VC Prof. Francis Aduol in dance.
- 4. Executive Dean FSST Prof. Emily A. Akuno (left) perform a song with a choir member.
- 5. Section of the graduating group.
- 6. TU-K staff during graduation ceremony
- 7. Student Union Leaders led by the Chairman Brian Reeves Obare (third right)





#### **4<sup>TH</sup> GRADUATION CEREMONY PICTORIA L**











## SURVEY REVEALS PROFESSIONALS MOST SOUGHT BY EMPLOYERS



Participants following proceedings in an event.

Professionals in sales and marketing, ICT, accounting, and administration are the most sought after by employers this year, a new survey has revealed.

The 2017 Corporate Staffing Services Job Outlook survey, released on Monday, indicates that these are the jobs a majority of employers are looking to fill as they seek to grow their revenue and market presence.

The survey also noted that most employers are grappling with a high turnover and lack of skilled employees in critical income-generating positions.

Most of the employers surveyed indicated that they will not be increasing staff compensation, explaining that they believe they are paying market rates.

"Instead, they will eliminate some benefits and maintain their current compensation cost while offering lower entry [salaries] for new staff in the course of the year," human resource consultancy firm Corporate Staffing Services, CEO, Perminus Wainaina said in a statement.

#### POLITICAL UNCERTAINTY

This being an election year, the survey also established that most employers (52.2 per cent) believe the current political climate is their biggest challenge.

The prevailing political uncertainty calls for risk management, and hence most organisations, especially in

the private sector, are not expanding into new markets.

"Another 43 per cent of those surveyed mentioned low economic growth as the second biggest challenge, which is brought about by low demand for goods and services, high inflation rates and drought," says the report.

#### JOB SECURITY

The Job Outlook Survey 2017: Trends, Challenges and Future Outlook, was released at a Nairobi hotel. In attendance were officers from Corporate Staffing Services and the Institute of Human Resource Management.

The survey examined the top trends impacting today's workforce and how organisations will be responding in the remainder of the year.

Some of the challenges employers face while recruiting staff include too many applicants seeking available jobs (67 per cent), followed by poor quality of candidates (56 per cent) and withdrawal from accepted job offers (40 per cent).

The report recommends to public and private organisations to focus on offering job security, retaining top talent, cultivating transparency and ensuring employees feel like partners in their workplaces.

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### **TU-K TO WORK WITH FRENCH UNIVERSITIES**



Sophie Prima, Director of International Relations University of Reunion Island (LEFT) and Anne-Francoise Zattara-Gros, Vice-President, International Relations & Regional Cooperation, University of Reunion Island when they paid a courtesy call to TU-K Vice-Chancellor Prof. Francis Aduol

niversities from France are keen on collaborating with the Technical University of Kenya in areas of education, research and training. This was disclosed recently when a delegation from France was received by the Vice-Chancellor, Prof. Francis Aduol. This was a follow up of collaboration initiatives which started last year when TU-K was represented in an international event held in Paris, France.

The delegation from France to TU-K further cemented the relationship between the universities. The delegation comprised of Antoine Caze', Professor of American Literature and Vice-President International Relations Office at the University of Sorbonne Paris City, Ce'cile Derbois, International Project Coordinator, the University of Sorbonne Paris City, Anne-Francoise Zattara-Gros, Vice-President, International Relations & Regional Cooperation, University of Reunion Island and Sophie Prima, Director of International Relations University of Reunion Island.

Vice-Chancellor Prof. Francis Aduol welcomed the team terming the visit important to the university adding that TU-K was open for collaborations in areas and programmes of mutual interest. "We are open for collaboration in areas that would help us move forward," he emphasized.

Prof. Aduol requested France to offer education scholarships and exchange programmes for both students and staff. The delegation agreed to identify opportunities and give a priority to the university.

Prof. Antoine Caze noted that Kenya is their key point in East and Central Africa when it comes to matters on education. He added that France had collaborations with other institutions in the country and therefore was ready and willing to work with TU-K. "We have collaborations with other Kenyan institutions and we will be happy to work with the Technical University of Kenya," he said.

Prof. Aduol requested France to offer Education Scholarships and exchange programmes for both students and staff. The team visited the University's Engineering and Applied Sciences workshops and laboratories and were impressed by the state of the art machines and equipment, saying that it will provide leadership for the growth of small scale industries through the conduct of research, development and related activities.

Early Last year, The Chairman Department of Aeronautical and Space Engineering Prof. Faustine Ondore and the Executive Officer, Office of the Vice-Chancellor, Mr. Cosmas Kanyadudi, represented the university at an event that brought together Directors of International Relations and Linkages from various French Universities, Research Centers and Technical Vocational Education & Training(TVET) institutions.

The duo, visited various universities to initiate collaboration efforts and linkages. They gave a presentation about the Kenyan Higher Education and TVET sector as well as the role played by TU-K in spearheading technical training in the country.

Other Kenyan universities were also represented.

#### INNOVATION

## TU-K ALUMNI'S DRONE W

hree aeronautical engineering graduates from TU-K recently won IATA Air Cargo Innovation awards held in Abu Dhabi on Thursday 16th March 2017. The project titled UAV Traffic Management (UTM) Concept for Africa won the award after close competition with Etihad Airways, Jettainer, Gatechain and Openairlines. The project was presented under Astral Aerial Solutions, a subsidiary of Astral Aviation Ltd. 46 projects had been submitted worldwide and the UTM project was among the five finalists. Upon presentation in Abu Dhabi, the project won the award and \$20,000 (Sh2 million) which will go into further developing the project.

Geoffrey Nyaga, Hazel Wachira and Mwanzia Mawili, who graduated from TU-K in December 2016, were motivated by their CEO Sanjeev Gadhia, who is a renowned entrepreneur, to come up with an innovative way to manage UAV traffic to avoid flights into restricted areas and also avoid collisions. This led to the birth of UTM for Africa that won the award.

While at TU-K, they were known to always take up challenging engineering problems without fear of failure and coming up with innovative solutions. Their interest in drones came about when Geoffrey and Hazel were presenting the Kenya One project at the Global Entrepreneurship Summit in July 2015. This was a design project of Kenya's first aircraft; A general aviation aircraft capable of carrying four passengers and travelling 1200 km. It was during this event that one of their first mentors challenged them to build a drone that can travel from Nairobi to Mombasa. They took up the challenge and started building the first fixed wing drone in Kenya using locally available materials such as plywood, polythene and electronics.

Their first attempt to fly wasn't successful as the drone took off and crashed. After 11 more consecutive failures in a span of four months they finally flew. This was through determination and constant improvement. So far, they have built 3





## INS SH2M PRIZE AWARD

(working) drones.

In August 2016, they met with Astral Aviation CEO, Mr. Gadhia who was in the process of starting a drone company in Kenya. He was on the forefront of advocating for the release of the drone regulations in the country. Thereafter, they joined Astral Aerial Solutions and three months later graduated from TU-K with Geoffrey and Hazel attaining First Class honours degree.

They officially started their careers at Astral Aerial in January after graduation on a full time basis. The UTM project was the first project they worked on while at Astral Aerial. The Company is set to be the region's leading drone operator and service provider and operate a 2000kg payload drone called Flyox which capable of travelling 1200km and landing on water and unpaved runways. This drone will be used for humanitarian and relief aid, agriculture, oil and gas and ecommerce application.

"It is great to have a company and a CEO who truly understands and nurtures the innovative potential of young Kenyans. This has made a



Aeronautical Engineering students testing their drone in a field.

statement in the industry that change can come from young minds that have new ideas and innovative solutions that can leapfrog existing technologies.

We believe that the UTM is a step in bringing out the positive and safe applications of drones in our airspace and we look forward to the public embracing the benefits associated with drones."

Currently, we are planning on operating drones commercially. The

former students are currently employees at Astral Aerial - a subsidiary company of Astral Aviation, which is a dedicated cargo airline with a footprint in Africa.

Astral Aerial is consulting and in the process of submitting our papers for regulatory approval as the drone regulations were passed a few weeks ago. We are waiting for the official gazette notice to begin approval process and commercial operations," said Nyaga during an interview.



#### CONFERENCE

## WHY TVET IS A GAME CHANGER

he Technical University of Kenya recently participated in the much anticipated event dubbed "Hands on the Future National TVET Conference and Kenya Skills Show 2017." The two-day event was held at KICC, Nairobi and called for strengthening collaborations in the skills gap among youth in a bid to ensure a sustainable economy hence addressing unemployment.

The Hands on the Future National TVET Conference is a forum for national and international stakeholders, from the public and private sectors, development partners, NGOs, and youth representatives to dialogue, learn and exchange on key challenges and opportunities to unlock the potential of the technical and vocational education and training (TVET) ecosystem in Kenya.

The conference which attracted education experts, private sector and top government officials had the main objective to persuade Kenyans to move away from the idea that TVET education is less prestigious and of lower value, than university qualifications.

The conference which called for collaborations among TVET partners in Kenya further promoted policy debate on various TVET matters and additionally allowed stakeholders from public and private sectors to showcase their best practices, innovation and products.

Some of the key areas addressed during the conference included exchange of key challenges and opportunities to unlock the potential of TVET ecosystem in Kenya.

The Chief Guest of the event was the *Cabinet Secretary for Industrialisation, Mr Adan Mohammed.* "We need to promote and foster innovation for this country to industrialize. We have noted that industrial training is having a positive impact on the society especially in terms of job creation hence should be encouraged widely" he said in his speech.

The CS gave an example of the



Industrialisation Cabinet Secretary Mr Adan Mohammed

Textile Industry which he noted currently requires about 20,000 machinists to sew in the next 12 months. "To drive our economic growth, we need to set a strong base of well trained manpower" he said.

Another main speaker in the TVET conference was Dennis Awori, Chairman of Toyota East Africa who spoke on the essential role of the private sector in making TVET relevant.

Mr. Peter Shiras, Executive Vice President of Business Development, International Youth Foundation also gave a speech on integrating work readiness life skills training and measurement into TVET systems in Africa." Soft skills and life skills are very critical and should be integrated to main teachings to encourage innovation" he emphasised.

The Hands on the Future conference focused on building upon the successes of the TVET sector in Kenya and strengthening collaborations across the ecosystem to substantially contribute to addressing youth unemployment and the skills gap present in many sectors in Kenya.

TVET has partnered with the government, private sector, international and local organisations and NGO's including the World Bank to ensure its core mandate is achieved.

Technical University of Kenya DVC - Technology, Innovation and Partnerships (TIP) Prof. Suki Mwendwa moderated a panel on Opening Doors for linking private sector with academia at the Shimba hills room. She highlighted the collaborations TU-K has done in contributing to opening doors for linking academia to the industry.

"Ever since I started working in the academic sector, it has not been just a job for me but a commitment working with the University. From my experience overtime, the challenges



Faculty of Engineering Science and Technology Executive Dean Prof. Alex Muumbo (left) among the participants attending the "Hands on the Future National TVET Conference and Kenya Skills Show 2017" that was held at KICC.

#### CONFERENCE



Participants during the "Hands on the Future National TVET Conference and Kenya Skills Show 2017" that was held at KICC

we've faced is that we have technical people and academic people. So, how can the two work together? Prof. Suki emphasised that the industry wants compliance from academic people and innovation that gives an end product from the technical people. "Continuing Vocational Education and Training (CVET) for TVET is not a choice but an option" Prof. Suki Mwendwa said as she concluded.

Other panelists included Fatma Rahemtulla, Knod Foundation, Dr. Olubunmi Owoso, Secretary General, Commonwealth Association of Technical Universities and Polytechnics in Africa (CAPA).

The first TVET conference was held in 2014 through the initiative of the Delegation of German Industry and One of the event's highlights was the 'Skills Show', a handson exhibition that targeted 25,000 youths in Nairobi and its environs specifically school leavers, current form three and four students, parents of youths, private and general public.

Commerce in Kenya (AHK), together with the Kenya Private Sector Alliance (KEPSA) and LIWA (Linking Industry with Academia).

One of the events highlights was the 'Skills Show', a hands-on exhibition



DVC - TIP, Prof Suki Mwendwa speaks during a two-day conference.

that targeted 25,000 youths in Nairobi and its environs specifically school leavers, current form three and four students, parents of youths, private sector and general public.

The main objective of this initiative was for participants to experience hands-on exhibits and interact with training providers, employers, career counselors, and others to learn about the opportunities for gaining technical, vocational, entrepreneurship and life skills for job readiness.

The official opening of the Kenya Skills Show by the Chairman of the working group on TVET concluded the event with its primary goal to enthusiastically pursue technical, vocational, entrepreneurship and/ or life skills training opportunities in order to get ahead in life and become more productive, responsible citizens.

A recently released study by the World Bank indicates that "countries that have successfully transitioned from low to middle-income status, and in turn from middle to highincome status, have appropriately balanced academic and professional qualifications."

The study further indicates that middle-income countries in East Asia that have become industrial giants such as China, Malaysia and Korea had over 50 per cent of their tertiary students enrolled in TVET programmes compared to those in universities.

## VARSITY TAKES LEAD IN TRAINING PLAYERS IN CHEMICAL SECURITY

he Technical University of Kenya has taken the lead in ensuring safe handling of industrial chemicals. The move ensures Kenya's industries meet global standards of chemical security in checking chemical accidents and malicious use of chemicals to assemble explosives that can cause death and destruction of property.

The University together with Kenya Chemical Society (KCS) recently trained representatives from 15 local chemical-producing companies industries that use chemicals in their production processes and their distributors. Late 2016, TU-K also trained another group of chemical handlers from the industry on computer-based Chemical Inventory Management Systems (CIMS).

Speaking during the three-day workshop, Dr. Austin Ochieng who was one of the facilitators, said the initiative comes at a time when country's security organs are stringently monitoring terror elements who can sneak away chemicals to make deadly explosives.

"Some of the chemicals are very explosive when combined with other elements, this calls for very strict measures to ensure such chemicals are properly handled and kept under safe custody," said Dr Ochieng who is also the Chairman of Chemical Science and Technology Department.

While referring to a near terror attack in Nairobi's CBD where terrorists assembled explosives using chemicals, Dr Ochieng said Kenyans should be sensitised on handling chemical inputs like farm fertilizers.

The discussions on terror-related use of chemicals was captured in the training during the discussion on dual-use chemicals and international controls with organisations including Organization for the Prohibition of Chemical Weapons (OPCW) and Chemical Weapons Convention (CWC) coming into the picture.



Dr Austin Aluoch, the Chairman of the Department of Chemical Science and Technology speaking during the computer-based Chemical Inventory Management Systems (CIMS) workshop at TU-K's Sumsung lab. Dr. Aluoch was among the facilitators.

Other areas of training included chemical laboratory safety, chemical hazards in process industry, laboratory emergency planning, response and management, chemical reactivity hazards, Chemical Inventory Management System (CIMS), barcodes, chemical risk assessment, process hazard analysis and equipment inspection.

Some of the companies represented during the training included Coca Cola, Crown Paints, KIRDI, Quantic Solution, MEDS, KEPHIS, Crop Nutrition Lab Services,

One of the events highlights was the 'Skills Show', a handson exhibition that targeted 25,000 youths in Nairobi and its environs specifically school leavers, current form three and four students, parents of youths, private and general public. Agri-Quest, Orbit Chemicals, Merck (Pty) Limited, SGS, Tata Chemicals-Magadi, Muhoroni Sugar Company, Mumias Sugar Company, Golden Africa Kenya, Sony Sugar, Geothermal Development Company, Spectre International and Jaramogi Oginga Odinga University of Science and Technology.

According to Mr. Simon Adede, one of the trainers, technical persons handling chemicals at any stage must adhere to standard protocols to avoid chemical related accidents.

"Some of the concepts we are sharing with industry players include procedures and strategic chemical storage to withstand damage of containers whenever natural disasters including floods, earthquakes, building collapse among others arise," said Adede.

He also noted that part of the training included handling of flammable chemicals and cylinders especially around ignition source. This extended to separating alkali metals from water, acids from bases, lock-up drugs and highly toxic chemicals.

## TU-K TO HELP SOMALILAND DEVELOP TVET CURRICULUM

Some of the highlight roles

meeting include; exchange

of experience, donation of

collaboration in training,

equipment, staff exchange,

sharing of learning resources

and joint bidding for funding.

that emerged from the

ave the Children International has contracted the Technical University of Kenya (TU-K) to help in developing Somaliland National Curriculum for Technical and Vocational Education and Training (TVET).

With the support of the European Union Fund, TU-K has been contracted to offer consultancy services in Hargeisa, Somaliland in reviewing six syllabi within the curriculum of the national TVET qualification. These programmes include; Electrical Installation, Plumbing and Pipe Fitting, Motor Vehicles Mechanics, Consumer Electronics, Welding and Fabrication as well as Garment Making.

The Technical University of Kenya VC Prof. Francis Aduol signed the contract in January 2017 giving the TU-K team a go-ahead. Through the Directorate of TVET Programmes and Partnerships, TU-K, the East and Central African leader in TVET, beat over 20 institutions across the region who applied for the assignment in Somaliland.

"TU-K is in the best position in taking up several opportunities from both government and non-government development partners. TVET has been identified by development actors across board to be key in the realisation of sustainable development goals," says a TU-K TVET Programmes and Partnership report.

Somaliland TVET advisor to the Ministry of Education and Higher Learning, Mr. Hussein Elmi, held a plenary

meeting in mid January this year in Hargeisa with TU-K's TVET Director, Mr. C. T. Akumu Owuor alongside stakeholders from both parties.

Some of the highlight roles that emerged from the meeting include; exchange of experience, donation of equipment, staff exchange, collaboration in training, sharing of learning resources and joint bidding for funding.

"The Somaliland government

desires to make TVET sector strong, large and vibrant. The planned expansion of TVET will require more staff to handle trainings at semi-professional and professional levels," said Hussein

Mr. Hussein noted that growth in various sectors in Somaliland including building of Berbera Port, exploration of oil and gas among others demanded skilled technical workforce.

"The government is planning to empower young people through such trainings that can be employable; this will therefore control migration of Somaliland youth to diaspora and provide returnees with TVET skills for sustainable livelihoods," he added.

Consultancy and capacity building services offered



by TU-K around technical and vocational areas build strong framework in achieving the University's mission in regional development. Some of the key areas TU-K offers services include; training of trainers including lecturers and technical instructors, capacity building in Competency Based Education and Training (CBET), feasibility studies on TVET systems, TVET skills gap analysis, market assessment and setting of industry standards as well as development of National Vocational Qualification Frameworks.

Through the Directorate of TVET programmes, the University has made strong bids for consultancy work in

capacity building including; Skills Gap Assessment, Market Potentials and Curriculum Design for Infrastructure and Energy Technology in Somalia (Care International), TVET Feasibility Study and Market Value Chain Analysis for TVET profession in Somaliland, Training of TVET Lecturers in Somalia (DRC), TVET Skills for Returnee Refugees in Somalia (NRC and AAHI) and TVET Skills for South Sudanese Youth and

Women in various Camps in South Sudan (Anglican Church of South Sudan).

TU-K staff working on the Hargeisa project include; the TVET Programmes Director C.T. Akumu Owuor who will ensure Management, Coordinatinon and Quality Assurance, Joseph Odhiambo Ndaga (Project initiation and consultancy support services), Arthur Rateng, a TVET curriculum expert (Leader of the subject experts).

Others are James Mbuthi (Electrical Installation), Samuel Mburia Kariuki (Motor Vehicle Mechanics), Peter Kinyanjui Njenga (Plumbing and Pipe Fitting), Antony Mubinya (Consumer Electronics), Alex Muri (Welding and Metal Fabrication) and Beatrice Jedidah Awuor Juma (Garment Making).

## INTERNATIONALLY-BENCHMARKED TRAINING LAUNCHED AT TU-K

U-K has developed four (4) internationally benchmarked technical training programmes in Welding Technology, Heavy and Light Machinery Technology, Mechanical Maintenance Technology and Instrumentation and Control Technology.

These programmes have been developed in collaboration with GIZ E4D SOGA Project over the last two years, starting with the pedagogy and didactics of Competency Based Education and Training (CBET), and technical upgrading to international standards and programme development with international consultants from Ghana, South Africa, Germany and Zimbabwe.

Two units of the programmes: Welding Technology (Manual Metal Arc Welding Operator and GAS Operator) and Heavy and Light Machinery Technology (Excavator Operator, Dozer Operator and Grader Operator), were launched in March, 2017, with the first cohort of 22 students.

TU-K's partnership with GIZ presented TU-K and TUM, the two first technical universities in Kenya, the opportunity to work together to train 40 Master Trainers. 20 from each university, to begin to CBET certificate and diploma programmes in the university as a basis of technical innovation in the country. using demand driven modules of education and training. The Technical Universities, the apex of the TVET system, spearheading CBET, joined hands with Government and donor community to advocate technical training as a choice, and not an alternative, during the Hands on the Future National TVET Conference and Skills Show 2017 held at KICC. The response to move towards CBET methodology came about as a Government directive in response to



A Master Trainer getting ready for technical training at Nairobi Bottlers

the increased youth unemployment at 85 per cent among post secondary certificate holders. At the same time, employers in Kenyan industries have consistently pointed out the lack of competency among university graduates to fulfill their needs. This

Towards industrialization and preparedness for the upcoming human resource requirements for the extractive sector, particularly oil and gas, it is critical for training to produce work ready individuals to fit into all areas of the sector may be the result of the education sector tending to emphasize theory instruction over practical, hands on skill based technical education, which up to now has also been supply driven.

In line with current global initiatives to build, maintain, and sustain capacity for sustainable Kenya development, the Government is focusing on the transformation of TVET programmes to embrace CBET as a demand driven approach to satisfy industry needs, as the way forward for industrial and social development. This is in line with "Vision 2030" and various initiatives to address capacity building, technical training, and innovation.

Towards industrialisation and



Hands on the Future National TVET Conference and Skills Show 2017 held at KICC. TU-K and TUM presented a typical CBET setting (PLC programming and constructing electronic dice).

preparedness for the upcoming human resource requirements for the extractive sector, particularly oil and gas, it is critical for training to produce work ready individuals to fit into all areas of the sector. CBET methodology is key to filling the skills gap. As the programmes in TU-K are benchmarked with international Occupational Standards, trainees will be ready to work with multinationals and mega projects, as well as create businesses to support this emerging market.

Overall, the E4D SOGA/ TU-K collaboration is in line with Sustainable Development the Goal (SDG) No. 4 - "To ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". In order to achieve this, TU-K plans to continuously address the implementation of competency training by conducting in-house sensitization on CBET competency training, and training of selected staff in all academic Departments, as well as developing tailor made CBET curricula with industry. TU-K



**TVET** trainees in class

engages with communities through training of youth and women groups on detergent making, water purification methods and the use of sustainable energy for domestic use, as well as giving career talks in secondary schools. The training can now be enhanced using learner centered competency training. This will create awareness of CBET, while imparting skills and competencies. The University will also provide short courses for upward movement in technical skills for youth and informal sector to alleviate unemployment in the community.

## STAFF OFFERS CAREER TALK, DONATES FOODSTUFF TO SCHOOLS IN MOMBASA





Members of the TU-K choir hand Likoni School for the Blind foodstuff and toiletries during the visit to the school.

Members of the TU-K choir performing

he Technical University of Kenya held a career talk in two schools for the physically challenged in Mombasa and donated 100 Kilograms of rice and eight cartons of bar soap.

The University choir led by Dr. Gabriel Musungu spearheaded the twoday community outreach to the coast region with scheduled visits to Mombasa Boys Secondary School for the Physically Handicapped and Likoni School for the Blind where they shared career experiences, held interactive sessions and music concerts.

"This was one of a kind visit to the two schools in Mombasa where we had the two-day interaction with the young learners, discussing with them several opportunities they can pursue to be able to achieve their personal goals and better the community," Dr. Musungu noted adding that areas the team touched on include the several opportunities offered in higher institutions of learning that they could take advantage of.

Selected members of the team took

the young learners through the courses they are enrolled in, qualifications for individual course-work and job opportunities for in their areas of study.

The team equally offered oneon-one guidance to the students on various courses offered at TU-K, urging them to join the university after completion of their secondary school programme.

"As the university, we take learners through a course-work that is in line with market dynamics, this means

"As the university, we take learners through a course-work that is in line with market dynamics, this means we prepare students ready to hit road running after they graduate, either on employment capacities or self employment," – Dr. Musungu we prepare students ready to hit road running after they graduate, either on employment capacities or self employment," Dr. Musungu added.

The team shared several information resources including the TU-K newsletters, career guide materials to the schools' libraries.

Besides career talk, the team presented musical pieces, while members of the drama club who had accompanied them presented a skit whose central theme was 'Disability is not Inability', with the key message encouraging the students to work hard irrespective of their physical challenges.

The schools' leadership appreciated the visits especially coming from a university indicating that the gesture is vital in helping the pupils mold their future careers.

"We appreciate TU-K for choosing to visit us, this is wonderful; the concert and the encouragement you have given to the boys, we ask your to plan for another visit in future," noted Mombasa Boys Secondary School Deputy Principal.

## **CAPA RESOLVES TO IMPROVE TVET**



The VC, Prof Francis Aduol cuts a ribbon to mark the handing over of a car to CAPA Secretary-General, Dr Olubuumi Owoso. CAPA Secretariat is based at TU-K. The member institutions recently bought the car for the Secretary General's use.

frican states can now reverse negative perceptions towards TVET by upgrading TVET schools and ensuring the relevance of TVET to employers.

This was one of the resolutions the members of the Commonwealth Association of Technical Universities and Polytechnics in Africa (CAPA) made during a conference held at Lilongwe, Malawi in December 2016.

The theme of the conference was "Evolving Transformational Leadership and Innovative Management in TVET for Sustainable Development in Africa." Several other resolutions

were made including the need to aggressively strategise and market TVET for the public and industry so that they can appreciate what TVET has to offer towards skills development.

It was reiterated that CAPA should encourage non-governmental organisations (NGOs) to participate in designing, delivering and advocating TVET. For the curriculum development to be sustainable for TVET, it was resolved that workintegrated learning (industrial attachment) is an important part but there is need to enhance supervision and assessment.

Student Support services such as entrepreneurship development, progression to higher education and the world of work are vital ways of supporting students at the completion of their training.

The TU-K Vice-Chancellor was represented at the CAPA conference by TVET Director, Mr. Chrisantus Akumu.

### TRAINING FOR TVET TEACHERS COMMENCES

he Technical University of Kenya has admitted 116 technical training teachers from different parts of the country to pursue institution-based bachelors and diploma courses.

Of the total number, 88 will pursue bachelor's and 28 diploma programmes respectively. The teachers will be attending the courses at TU-K during holidays.

The teachers will benefit from the Ministry of Education that intends to utilize part of the funds extended to by the African Development Bank (ADB) towards scaling up of skills of the teaching staff and technicians in target TVET institutions. The objective of this project is to equip trainers and technicians with knowledge and skills by undertaking various measures which include: carrying out and guiding trainers in research work, using correct, innovative and appropriate training methodologies, ensuring quality and competence based instructions in accordance with objectives of the approved Technical Education Program (TEP) curricula.

The training is expected to be phased into several cohorts within a period of project implementation to close in December, 2020.

#### **FIRST AID**

## ST. JOHN AMBULANCE TRAINS STAFF ON LIFE-SAVING SKILLS





St. John Ambulance trainer Mr. Sylvester Odero taking TU-K staff through a training session at ladies hostels.

ore than 25 members of staff from the TU-K were recently trained on life-saving skills to enable them handle emergencies within the university, at their homes and the communities they live in.

Experts from St. John Ambulance took the staff drawn from various departments through theoretical knowledge as well as step-by-step procedures in giving first aid to disaster victims and responding to emergency and security attack situations.

Other topics covered included basic emergency and accident care, burns, handling the unconscious, Cardiopulmonary Resuscitation (CPR), HIV/AIDS awareness among others.

"The turnout and commitment by the TU-K staff who participated in the training has been exemplary. First Aid is such a simple skill, but it has an incredible impact. We want everyone to learn it, so that they can be the difference between a life lost and a life saved," said Mr. Sylvester Odero, one of the trainers from St. John Ambulance.

Ms. Sylvie Feliciene, the Head Nurse at UHWS, who was among

"When human heart stops pumping blood, the brain dies in less than 10 minutes unless circulation is restored, this is an excellent training opportunity necessary in any workplace, to improvise chain of survival skills like emergency care." – Ms. Sylvie Feliciene the facilitators further explained, "When human heart stops pumping blood, the brain dies in less than 10 minutes unless circulation is restored. This is an excellent training opportunity necessary in any workplace, to improvise the chain of survival skills like emergency care," she explained.

The one-day seminar organised by the University Health and Wellness Services (UHWS) and St. Johns Ambulance was held at students' Women Hostel based at Upperhill.

"There is need for regular First Aid training especially among the staff who handle large numbers of students; the students also should be trained on the same," said Dr. Argwings Kodhek, the UHWS Director.

Participants were issued with certificates of participation.

## **WORLD AIDS DAY MARKED**



World Aids Day celebrations at Nyayo Stadium where Kenya's First Lady Margaret Kenyatta was the Chief Guest

he Technical University of Kenya staff and students joined the rest of the world in marking the World AIDS day at a colorful event held at The Nyayo National Stadium on 1<sup>st</sup> December 2016. The event was organised by the National Aids Control Council (NACC). Students from various universities across the country attended the event in which the First Lady of Kenya Margaret Kenyatta was the chief guest.

Observed worldwide on 1<sup>st</sup> December since 1998, World AIDS Day is the moment of the year where millions of people across the globe come together to commemorate people who lost their lives to HIV, acknowledge progress made in responding to and recommit to ending the AIDS epidemic.

The 2016 Theme was "*Hands up for HIV prevention*" which aimed to emphasise the different aspects of HIV prevention and what it means to specific groups of people such as adolescents and young women, key populations and people living with HIV/AIDS.

"I appreciate the work of NACC in ensuring HIV awareness amongst university students. This event has been an eye opener especially HIV regarding services and Said Dr. Argwings education." Kodhek, the University Director, Health and Wellness Services (UHWS).

Kenyan youth, especially young women, are the most at risk age group for new HIV infections according to data published by the National AIDS

As per 2015 estimates, a total of 35,776 new HIV infections and 3,853 AIDS-related deaths occurred among young people aged 15 to 24. HIVrelated stigma remains a significant barrier to many young people accessing HIV counseling and testing, as well as lifesaving HIV treatment. Control Council. HIV is a significant health threat among adolescents and young people in Kenya. As per 2015 estimates, a total of 35 776 new HIV infections and 3 853 AIDS-related deaths occurred among young people aged 15 to 24. HIV-related stigma remains a significant barrier to many young people accessing HIV counseling and testing, as well as lifesaving HIV treatment.

The theme touched directly on students as they fall within this age group. Nairobi County emerged first in HIV care and treatment. The Technical University of Kenya, with the support of NASCOP and NACC, through the Nairobi County has made progress in advocacy for behaviour change, treatment and care.

The TU-K Health and Wellness Centre has majorly been involved in the fight against HIV/AIDS and works towards sensitizing staff and students on HIV/AIDS, prevention and treatment, offers counseling and testing, Prevention of Mother To Child Transmission and in addition carries out VCT services.

### **TU-K ACADEMIC PROGRAMMES**

#### MASTERS DEGREE COURSES

Master of Science in Applied Statistics
Master of Science in Mathematical Statistics
Master of Science in Mathematics (Pure or Applied
Mathematics)
Master of Technology in Applied Parasitology
Master of Science in Forensic Biochemistry
Master of Philosophy in Applied Parasitology
Master of Science in Applied Parasitology
Masters of Technology in Environmental Resource Management
Master of Technology (Mechanical Engineering)
Master of Arts in Entrepreneurship
Master of Business Administration
Master of Applied Linguistics
Masters of Science in Information and Knowledge Management
Masters of Science in International Relations
Master of Music in Music Education or African Music Studies
Master of Musical Arts in Composition or Performance
BACHELOR'S DEGREE COURSES
Bachelor of Technology (Quantity Surveying)
Bachelor of Technology (Construction Management)
Bachelor of Technology (Building Construction)
Bachelor of Real Estate
Bachelor of Quantity Surveying
Bachelor of Philosophy in:
Geoinformation Technology
Surveying Technology
Bachelor of Engineering in Geospatial Engineering
Bachelor of Applied Science in Geo-Informatics
Bachelor of Technology: • Geoinformation Technology
Surveying Technology
Bachelor of Science Land Administration
Bachelor of Engineering in Electrical and Electronic Engineering
Bachelor of Technology in Electrical and Electronic Engineering Technology
Bachelor of Technology in Electrical and Electronic Engineering Technology
Bachelor of Engineering-Civil Engineering
Bachelor of Technology-Civil Engineering
Bachelor of Engineering in Aeronautical Engineering
Bachelor of Engineering (Chemical Engineering)
Bachelor of Technology in Chemical Engineering
Bachelor of Engineering in Mechanical Engineering
Bachelor of Technology in Mechanical Engineering Technology
Bachelor of Philosophy in Technology (Applied Statistics)
Bachelor of Science in Mathematics

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	elor of Technology in Applied Statistics
	elor of Technology In: (Options)
	omputer Technology formation Technology
	ommunication and Computer Networks
	elor of Technology In: (Options)
	omputer Technology
	formation Technology
	ommunication and Computer Networks.
	elor of Technology in Applied Chemistry (Industrial
Chem	
	elor of Philosophy in Technology in Applied Chemistry ytical Option)
	elor of Technology in Environmental Resource gement
Bache	elor of Technology in Environmental Science
Bache	elor of Technology: Technical and Applied Physics
	elor of Philosophy In:
	pplied Biology
	iotechnology (Industrial and Medical Options)
	bod Science & Technology
	elor of Technology In: pplied Biology
	iotechnology (Industrial and Medical Options
	ood Science and Technology
	elor of Technology In:
	pplied Biology
	iotechnology (Industrial and Medical)
	bod Science and Technology cology and Biodiversity Conservation
	nvironmental Biology
	/ildlife Conservation and Management
Bache	elor of Science in Biochemistry
Bache	elor of Technology in Community and Public Health
	elor of Philosophy in Medical Laboratory Technology
	elor of Technology in Medical Laboratory Technology
	elor of Science (Nutrition and Dietetics)
	elor of Technology in Nutrition and Dietetics
	elor of Science in Medical Laboratory Science
	elor of Commerce (Options):
	ccounting
• Fi	inance
	usiness Management
	uman Resource Management
	larketing Management ogistics and Supply Chain Management
	ntrepreneurship
	isurance
	rocurement and Supplies Mgt.
	formation Systems
	perations Management
	elor of Business Commerce
Bache	elor of Science in Accountancy
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Bachelor of Technology (Business Information Technology)

### **TU-K ACADEMIC PROGRAMMES**

Bachelor of Technology in Office Administration and

Technology
Bachelor of Technology in Office Administration and Technology
Bachelor of Science in Information Science
Bachelor of Technology in Information Studies
Bachelor of Technology in Journalism and Mass Communication
Bachelor of Science Counseling Psychology
Bachelor in International Relations and Diplomacy
Bachelor in International Relations and Diplomacy
Bachelor of Science in Disaster and Emergency Management
Bachelor of Technology in Design
Bachelor of Music
Bachelor of Philosophy in Technology (Printing)
Bachelor of Science in Hospitality Management
Bachelor of Science in Tourism and Travel Management
Bachelor of Technology in Tourism and Travel Management
Bachelor of Technology in Hotel and Restaurant Management
Bachelor of Technology in Institutional Catering and Accommodation Management
Bachelor of Science in Event and Convention Management
DIPLOMA COURSES
Diploma in Technology – Civil Engineering
Diploma in Technology (Electrical and Electronic Engineering)
Diploma in Technology: • Geoiformation Technology • Surveying Technology
<ul> <li>Diploma in Technology (Mechanical Engineering – Options:</li> <li>Manufacturing Engineering</li> <li>Industrial Plant and Energy Engineering</li> <li>Automotive and Autotronic Engineering</li> <li>Structural Fabrication and Metallurgical Engineering</li> <li>Refrigeration and Air Conditioning Engineering:</li> <li>Mechatronic Engineering</li> </ul>
Diploma in Technology Aeronautical Engineering
Diploma in Technology (Real Estate)
Diploma in Technology (Quantity Surveying)
Diploma in Technology (Construction Management)
Diploma in Technology (Building Construction)
Diploma in Technology Architecture
Diploma in Technology: (Options) • Applied Statistics • Actuarial Science
Diploma in Environmental Resource Management
Diploma in Technology: Technical and Applied Physics
Diploma in Technology in Analytical Chemistry

Diploma in Technology in Industrial Chemistry

Diploma in Technology In: (Options) • Computer Technology • Information Technology • Communication and Computer Networks
Diploma in Technology In: • Industrial and Applied Biology • Biotechnology • Biochemistry • Food Science and Technology • Ecology and Conservation Biology
Diploma Medical Laboratory Science
Diploma in Pharmaceutical Technology
Diploma of Technology in Journalism and Mass Communication
Diploma in Technology in: • Archives and Records Management • Library and Information Technology
Diploma in Technology Nutrition and Dietetics
Diploma in Laboratory Technology
Diploma in Business Information Technology
Diploma in Entrepreneurship
<ul> <li>Diploma in Business Studies Options:</li> <li>Business Administration</li> <li>Human Resource Management</li> <li>Sales and Marketing Management</li> <li>Procurement and Supply Chain Management</li> </ul>
Diploma in Accountancy
Diploma in Office Administration: • Legal Secretarial • Medical Secretarial • Business Secretarial • Foreign Language Secretarial
Diploma in Community and Public Health
Diploma in Technology in Health Records and Information Technology
Diploma in International Relations and Diplomacy
Diploma in Disaster Management
Diploma in Legal Studies
Diploma in Criminology and Security Studies
Diploma in Social Work and Community Development
Diploma in Counseling Psychology
Diploma In Technology in Event and Convention Management
Diploma in Technology (Dip-Tech) in Hotel and Restaurant Management
Diploma in Technology (Dip-Tech) in Institutional Catering and Accommodation Management
Diploma in Housekeeping and Front Office Management
Diploma of Technology in Tourism and Travel Management
Diploma in Technology in Printing
Diploma in Technology (Fashion Design)
Diploma in Music
Diploma in Technology in Design





#### THE TECHNICAL UNIVERSITY OF KENYA

Education and Training for the Real World

#### **Contact Details**

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